WHAT IS CLAIMED IS:

1. A method of manufacturing a fiber assembly, said method comprising:
providing a plurality of layers, each layer comprising sintered fibers of piezoelectric material aligned substantially parallel;
laminating said plurality of layers; and
applying a matrix material to the laminated layers to affix said layers and form a fiber assembly.

2. The method of claim 1, further comprising:
sectioning a portion from said fiber assembly.

3. The method of claim 2, wherein said portion has two opposing surfaces and contains fibers that are substantially normal to said opposing surfaces.

4. The method of claim 2, wherein said portion has two opposing surfaces and contains fiber that are substantially parallel to said opposing surfaces.

5. The method of claim 2, further comprising:
applying at least one electrode to each opposing surface.

6. The method of claim 5, wherein a plurality of interigitized electrodes are applied.

7. The method of claim 1, wherein laminating said planar layers comprises interleaving planar layers of varying fiber characteristics.

8. The method of claim 7, wherein said layers of varying fiber characteristics have different fiber concentrations.

9. The method of claim 7, wherein said layers of varying fiber characteristics have fibers of different average diameters.

10. The method of claim 7, wherein a different set of electrodes is applied to said layers of varying fiber characteristics.

11. The method of claim 1, wherein said layers have substantially similar fiber characteristics.

12. The method of claim 1, further comprising poling said sectioned portion.

13. The method of claim 1, wherein said piezoelectric material is at least one of PZT (lead zirconium titanate), lead niobate ($PbNbO_6$), lead titanate ($PbTiO_3$), barium titanate ($BaTiO_3$), sodium bismoth titanate (pure or co-doped), lead-based ceramics doped with lanthanum, tin, or niobium, electrostrictive materials, memory piezoelectric materials, or relaxor materials.

14. The method of claim 1, wherein each opposing side of said portion has an area greater than about $1.5cm^2$.

15. The method of claim 1, wherein the variation of fiber concentration in no greater than about $20\%/cm^3$.

16. A fiber assembly made from the method of claim 1.

17. A portion made from the method of claim 2.

18. A fiber composite comprising:

two opposing surfaces wherein each opposing surface has an area greater than about $1.5\ in^2$;

a plurality of piezoelectric fibers wherein the fiber concentration/cm^3 varies no greater than about 20% of the overall fiber concentration of fiber composite; and

a matrix material binding said fibers.

19. The fiber composite of claim 18, wherein said fibers are normal to said opposing surfaces.

20. The fiber composite of claim 18, wherein said area is no less than about 2.5 in^2.